

CLAIMS

1. A solid-state imaging device comprising an imaging area having a plurality of unit cells in a two-dimensional array, each unit cell including a group of a predetermined number of pixels; and signal lines used for selecting the pixels,

wherein the unit cell includes a plurality of photoelectric converters corresponding to the pixels; amplifying means, shared by the pixels, for amplifying a signal read out from each photoelectric converter and outputting the amplified signal; and transfer means for selectively reading out the signal from the photoelectric converter and supplying the readout signal to the amplifying means, and

wherein the signal line used for driving the amplifying means is a full-face signal line shared by all the pixels and driving the full-face signal line allows the signal to be read out from each pixel.

2. The solid-state imaging device according to Claim 1, further comprising reset means for resetting an input section of the amplifying means.

3. The solid-state imaging device according to Claim 2, wherein the signal line used for driving the reset means is the full-face signal line and driving the full-face

signal line resets the input section of the amplifying means.

4. The solid-state imaging device according to Claim 1,  
wherein the unit cells are shifted from each other in  
the column direction by one pixel or by an amount smaller  
5 than one pixel for every pixel column in the imaging area.

5. The solid-state imaging device according to Claim 2,  
wherein a full-face selection signal passing through  
the full-face signal line used for driving the reset means  
and the amplifying means is changed from an active state to  
10 a non-active state at a time outside a readout operation  
period of the pixel.

6. The solid-state imaging device according to Claim 2,  
wherein the reset means is a transistor, and wherein a  
full-face selection signal passing through the full-face  
15 signal line is changed to an active state during a readout  
period of the pixel, a reset signal supplied to the gate of  
the reset means is changed to a non-active state, and a  
driving signal supplied to the transfer means is changed to  
the active state to read out a charge signal stored in the  
20 photoelectric converter.

7. A solid-state imaging device comprising an imaging  
area having a plurality of unit cells in a two-dimensional  
array, each unit cell including a group of a predetermined  
number of pixels; and signal lines used for selecting the  
25 pixels,

wherein the unit cell includes a plurality of photoelectric converters corresponding to the pixels; amplifying means, shared by the pixels, for amplifying a signal read out from each photoelectric converter and  
5 outputting the amplified signal; and transfer means for selectively reading out the signal from the photoelectric converter and supplying the readout signal to the amplifying means, and

wherein the photoelectric converters in the unit cells  
10 are arranged so as to be diagonally adjacent to each other.

8. The solid-state imaging device according to Claim 7,  
wherein the photoelectric converters diagonally adjacent to each other are horizontally or vertically shifted by an amount smaller than one pixel.

15 9. The solid-state imaging device according to Claim 7,  
wherein the signal line used for driving the amplifying means is a full-face signal line shared by all the pixels and driving the full-face signal line allows the signal to be read out from each pixel.

20 10. The solid-state imaging device according to Claim 9,  
further comprising reset means for resetting an input section of the amplifying means.

11. The solid-state imaging device according to Claim 10,  
wherein the signal line used for driving the reset  
25 means is the full-face signal line and driving the full-face

signal line resets the input section of the amplifying means.

12. The solid-state imaging device according to Claim 7,  
wherein signals output from the pixels in the imaging  
area are read out through two output systems.

5 13. The solid-state imaging device according to Claim 12,  
wherein the imaging area is provided with a RGB Bayer  
color filter, and wherein signals are read out from the  
pixels filtered by G filters through the same output system.

10 14. The solid-state imaging device according to Claim 10,  
wherein a full-face selection signal passing through  
the full-face signal line used for driving the reset means  
and the amplifying means is changed from an active state to  
a non-active state at a time outside a readout operation  
period of the pixel.

15 15. The solid-state imaging device according to Claim 10,  
wherein the reset means is a transistor, and wherein a  
full-face selection signal passing through the full-face  
signal line is changed to an active state during a readout  
period of the pixel, a reset signal supplied to the gate of  
20 the reset means is changed to a non-active state, and a  
driving signal supplied to the transfer means is changed to  
the active state to read out a charge signal stored in the  
photoelectric converter.

25 16. A solid-state imaging device comprising an imaging  
area having a plurality of unit cells in a two-dimensional

array, each unit cell including a group of a predetermined number of pixels,

wherein the unit cell includes an amplifying transistor that amplifies an electric charge read out from a

5 photoelectric converter in each pixel; a reset transistor that resets an input section of the amplifying transistor; and a signal line that is connected to the reset transistor and varies a reset level of the amplifying transistor,

10 wherein at least two pixels in the unit cell share the amplifying transistor, and

wherein the signal line is shared by all the pixels.

17. The solid-state imaging device according to Claim 16, further comprising output signal lines provided for every pixel column in the imaging area,

15 wherein each color of filter in a Bayer color filter is provided over the pixel,

wherein two pixels having a red filter and a blue filter provided thereover, the red filter being adjacent to the blue filter, share one output signal line, and

20 wherein two pixels having two adjacent green filters provided thereover share one output signal line.

18. The solid-state imaging device according to Claim 17, further comprising at least two horizontal signal lines corresponding to the multiple output signal lines,

25 wherein signals are read out from all the pixels

corresponding to the green filters in the color filter to the same horizontal signal line.

19. The solid-state imaging device according to Claim 16,  
wherein a color filter is provided over the pixels,  
5 wherein each pixel includes a transfer transistor that reads out the electric charge from the photoelectric converter, and

wherein the electric charge is read out from all the pixels corresponding to green filters in the color filter in  
10 the same direction by the transfer transistors.

20. The solid-state imaging device according to Claim 16,  
wherein the signal line has an opening corresponding to the photoelectric converter and functions as a light shielding film.